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10/568,686	10/05/2007	Davide Sarchi	09877.0373	2771

22852   7590   09/27/2010
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EXAMINER
DEHGHAN, QUEENIE S

ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *08 July 2010*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *12,14,16-20 and 22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *12,14,16-20 and 22* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *4/12/10*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

3.   **Claims 12, 16-20 and 22 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Chen et al. (6,876,804) in view of Henderson et al. (6,240,748).

Regarding claims 12 and 16-17, Chen discloses a process for producing low

polarization mode dispersion (PMD) optical fiber comprising the steps of drawing an

optical fiber from a glass preform and imparting to the fiber during drawing a spin about

its axis with inversions of the spin direction, wherein the number of inversions in a

length of fiber of 25 meters being at most two, as indicated by a spin period of greater

than 30 meters (col. 2 lines 46-65, figure 3). Chen also discloses imparting the spin

according to a bidirectional spin function including zones of substantially constant

amplitude and zones of transition where the inversion takes place, wherein the

extension of the zones of substantially constant amplitude is greater than the extension

of the zones of transition (figure 7, col. 7 lines 39-61). Furthermore, Chen discloses

spin functions of various shapes can be employed and that is important that the spin

function is symmetric and spins clockwise and counter-clockwise directions with the

same magnitude (col. 7 lines 47-49). Henderson teaches a well known periodic spin

function in the art include sinusoidal, triangular and square, the square profile

comprising a substantially constant amplitude zone (figure 11a) and a transition zone

that is instantaneous. An instantaneous transition zone essentially has a distance that

is clearly lower than 10% of the distance of substantially constant amplitude zone

preceding it, as can be seen in figure 11a. It would have been obvious to one of

ordinary skill in the art at the time of the invention to have employed any of the well

known spin functions, in the process of Chen to achieve the desired reduction in PMD.

4.   Regarding claims 18 and 19, Chen discloses peak amplitude of the bi-directional

spin function is between 2 turns/m to 5 turns/m. More specifically, according to figure 7

and example 1, the peak amplitude is about 2.7 turns/m (col. 9 lines 26-27).

5.   Regarding claim 20, Chen discloses in figure 7, the distance between two

consecutive inversions is about 10m, which is less than 15m.

6.   Regarding claim 22, Chen also teaches a bi-directional spin function that is

trapezoidal (figure 7).

7.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen

(6,876,804) and Henderson et al. (6,240,748), as applied to claim 12 above, in further

view of Sasaoka et al. (2003/0010066). Chen discloses the spin is imparted can take

on various shapes and spin functions with shorter or longer spin periods (col. 7 lines 47-

51). Sasaoka teaches examples of trapezoidal spin functions including one with a

symmetrical spin period (figure 6a) and one with a non-periodic spin function that are

well known in the art (figure 6c, [0070], [0074]). It would have been obvious to one of

ordinary skill in the art at the time of the invention to have employed any of the well

known spin functions, periodic or non-periodic, in the process of Chen and Henderson

to achieve the desired reduction in PMD.

8.   **Claims 12, 16-20 and 22 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Chen et al. (6,876,804) in view of Galtarossa et al. (6,920,270).

Regarding claims 12 and 16-17, Chen discloses a process for producing low

polarization mode dispersion (PMD) optical fiber comprising the steps of drawing an

optical fiber from a glass preform and imparting to the fiber during drawing a spin about

its axis with inversions of the spin direction, wherein the number of inversions in a

length of fiber of 25 meters being at most two, as indicated by a spin period of greater

than 30 meters (col. 2 lines 46-65, figure 3). Chen also discloses imparting the spin

according to a bidirectional spin function including zones of substantially constant

amplitude and zones of transition where the inversion takes place, wherein the

extension of the zones of substantially constant amplitude is greater than the extension

of the zones of transition (figure 7, col. 7 lines 39-61). Furthermore, Chen discloses

spin functions of various shapes can be employed and that is important that the spin function is symmetric and spins clockwise and counter-clockwise directions with the same magnitude, such a trapezoidal one (col. 7 lines 47-49). Galtarossa also teaches trapezoidal spin function is a well known periodic spin function in the art, the spin function comprising a substantially constant amplitude zone (figure 3) and a transition zone (col. 21 liens 14-28). According to figure 3, the transition zone is the area wherein the inversion in direction takes place and it appears to be lower than 10% of the distance of substantially constant amplitude zone preceding it. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the well known spin function of Galtarossa in the process of Chen to achieve the desired reduction in PMD.

9.   Regarding claims 18 and 19, Chen discloses a peak amplitude of the bi-directional spin function is between 2 turns/m to 5 turns/m. More specifically, according to figure 7 and example 1, the peak amplitude is about 2.7 turns/m (col. 9 lines 26-27).

10.   Regarding claim 20, Chen discloses in figure 7, the distance between two consecutive inversions is about 10m, which is less than 15m.

11.   Regarding claim 22, Chen also teaches a bi-directional spin function that is trapezoidal (figure 7).

12.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (6,876,804) and Galtarossa et al. (6,920,270), as applied to claim 12 above, in further view of Sasaoka et al. (2003/0010066). Chen discloses the spin is imparted can take on various shapes and spin functions with shorter or longer spin periods (col. 7 lines 47-

51). Sasaoka teaches examples of trapezoidal spin functions including one with a

symmetrical spin period (figure 6a) and one with a non-periodic spin function that are

well known in the art (figure 6c, [0070], [0074]). It would have been obvious to one of

ordinary skill in the art at the time of the invention to have employed any of the well

known spin functions, periodic or non-periodic, in the process of Chen and Henderson

to achieve the desired reduction in PMD.

Response to Arguments

13.   Applicant's arguments filed July 8, 2010 have been fully considered but they are

not persuasive. The applicant's arguments regarding Chen are moot in light of the new

amended claims and new rejection presented above.

14.   Regarding Henderson, the applicant argues the Henderson does not teach a

transition zone at all. The specification notes the transition zone is the zone where the

inversion of the spin direction takes place. As can be seen in figure 11a, the transition

zone comprises such inversion points. Although the transition occurs immediately, the

claim does not exclude a transition zone of about 0. Therefore the claim limitation is

met. The applicant also argues the square spin function as undesirable. The spin

functions Henderson find more desirable are applicable for addressing the specific issue

of an optical fiber with different beat lengths. Although Henderson has found other

more ideal choices for this issue, Henderson still teaches that other spin functions are

well known in the art, such as square. One skilled in the art would be aware of the

various spin functions to try to address whatever specific issues the optical fiber might

have. In other words, although the square spin function is not ideal for Henderson's

issue(s), it still teaches the possibility of applying a square function to other scenarios, such as Chen's to see it helps to reduce PMD in the optical fiber.

Conclusion

15.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUEENIE DEHGHAN whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on 571-272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Queenie Dehghan/
Examiner, Art Unit 1791